BOOK REVIEWS

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PCR Protocols—Current Methods and Applications. Methods in Molecular Biology vol 15. Ed Bruce A White. (Pp 392.) Totowa, NJ: Humana Press. 1993. ISBN 0-89603-244-2.

This book is the latest in the Methods in Molecular Biology series and it is aimed at anyone using the PCR technique in any applicable field of research. With less emphasis on specific examples and hints for modification of particular protocols, the book aims to provide easily adaptable frameworks to suit most PCR based experimental strategies. Specific examples are provided throughout the book but, unlike many texts, suggestions for troubleshooting and modification of techniques are plentiful as well. Subjects range from a basic introduction to PCR and primer design to the complexities of PCR mutagenesis, genomic footprinting, and identification of new members of gene families.

For the researcher with PCR experience, this book offers practical help with a large range of techniques and includes many useful hints for optimisation of the described protocols. However, for the novice, I would not recommend this book for a number of reasons. There has been no attempt made to group techniques by subject, so once past the introductory chapters there is little guidance as to the suitability of particular protocols for particular projects. This omission is compounded by the listing of key topics and techniques on the back cover without any references to the main text. The space taken up by the unreadable listing of all the chapter titles on the back cover, which is in small type with no gaps between titles, could have been better used with a brief index. The organisation of each chapter is also unfriendly because the materials, methods, and notes sections are separated. This means the reader frequently needs to flip between three pages to obtain the full details of a protocol. It is ironic that the book is comb bound to allow it to lie flat on the bench because the layout means that the book will spend little time in this position as the reader tries to piece together the whole technique.

This book is not an essential purchase for the PCR worker but it is a valuable addition to the field, with the caveat that the useful details are often less than easy to find, which reduces its utility. For the beginner, I would be happier to recommend other works on PCR which have a clearer, more concise layout for both the theory and practice of most of the commonly used PCR protocols.

ANDREW J WALLEY

The Molecular and Genetic Basis of Neurological Disease. Ed R N Rosenberg, S B Prusiner, S DiMauro, R L Barchi, L M Kunkel. (Pp 1023; £175.00.) London: Butterworth-Heinemann. 1993.

The editors describe the first edition of this book as being "at the cutting edge of the interface between clinical and basic neuroscience". This is reflected in their choices of contributors, all authorities in their fields and with high profiles in the author lists in current neurology/genetics journals. The chapters are, in general, comprehensive, well written, and more than adequately referenced. The book is divided into sections, each containing between one and five chapters.

Part I, chapter 1, begins gently with descriptions of nucleic acids and DNA structure and translation, and progresses rapidly (in 17 pages) through DNA markers, restriction enzymes, and polymorphisms to linkage, cloning, and gene therapy. One small criticism is the use of the term 'reverse genetics' where most would now use 'positional cloning'. In addition the section devoted to Lesch-Nyhan disease would seem superfluous in view of the full chapter coverage later.

Chapter 2 is a list of the chromosomal locations for genetic neurological diseases and genes of relevance to the nervous system. There are some minor omissions: tuberous sclerosis has entries at 9q34, 11q14, 12q22 (the last two are rather dubious localisations) but not chromosome 16 where there is a major locus. This is, however, mentioned in the chapter on TS. Similarly, there are no listings for myotonia congenita and Becker generalised myotonia which are associated with the skeletal muscle chloride channel at 7q32-qter. Some entries list the disorder alongside the gene product but this is not universal; dystrophin does not appear with Duchenne and Becker muscular dystrophies. Chapter 3 gives a small (three pages) taste of linkage analysis, computer programs for such, and the problem of genetic heterogeneity. It is perhaps a little too short for a reader with no previous knowledge of this field.

The disease specific chapters which follow contain many highlights and very few disappointments. The chapters on metabolic disorders admirably cover the clinical, biochemical, and molecular features of the appropriate diseases. In addition they offer therapeutic protocols where available,

or discuss potentials for therapy. Part XII contains a single chapter; a scholarly multi-author review of the prion diseases of humans and animals. Prusiner and colleagues also provide ample scope for further reading on this fascinating topic with 311 references.

Part XIII contains reviews of the muscle dystrophies and, with the exception of the chapter on FSH/limb-girdle dystrophies which contains less than two pages of text, this section amply summarises the salient clinical and molecular features of these disorders. Roses (chapter 41) has been able to incorporate some of the rapidly appearing new data on the unstable trinucleotide repeat sequence associated with myotonic dystrophy and this chapter is well referenced up to 1992. At this time it was known that expansion of another trinucleotide repeat sequence, this time in the androgen receptor gene, was the causal mechanism of bulbospinal neuronopathy (Kennedy's syndrome). There is no mention of this, either in this chapter or (that this reviewer could find) elsewhere in the book.

Part XIV contains, again, a single contribution. DiMauro's review of mitochondrial disorders is comprehensive, clearly written, well supplemented with explanatory diagrams, and excellently referenced. Part XV deals with 'degenerative disorders' and begins with a chapter on hereditary ataxias. Unfortunately this was a little disappointing as over half of this chapter reviews disorders given more comprehensive coverage elsewhere in the text. Part XIX (neuronopathies and neuropathies) contains limited clinical information, the discussions focusing on gene mapping (for spinal muscular atrophy), mutations (transferrin and amyloid neuropathies), and peripheral nerve physiology (axonal neuropathies). The review of the genetic epilepsies (part XX/chapter 63) is particularly thorough, including a description of the epileptic Mongolian gerbil! It also includes useful guidelines on risk estimates and prognosis for use in counselling relatives of epileptic persons. The final chapters (gene therapy and consequences of gene mapping) conclude this volume with general discussions on likely future developments in the field of neurogenetic diseases, although specific examples are given for replacement therapy in animal models. The reviewer finds it surprising that there is no mention of the possible societal and political consequences of the Human Genome Project.

Is this the neurology equivalent of *The Metabolic Basis of Inherited Disease*? The answer must be 'yes'. The criticisms above are minor compared with the wealth of information provided overall and this volume will certainly fulfil its goal in being of use to clinicians caring for patients and for scientific investigators in this field. Every genetic/neurology unit should have access to this volume but most people will want their own copy and anyone with a colleague visiting North America would do well to persuade him/her to add the extra weight to their return luggage as the US price equates to £150.

JOHN C MACMILLAN